

REMARKS

This responds to the Office Action mailed on July 29, 2008.

Claims 1, 7, 16, and 26 are amended, no claims are canceled, and no claims are added; as a result, claims 1-8 and 12-27 remain pending in this application.

Specification Objections

The specification is objected to for failing to define a machine-readable medium . It is acknowledged that "machine-readable medium" will be treated as a tangible storage medium, as stated in the Office action. Withdrawal of the objection is respectfully requested.

Claim Objections

Claims 7 and 8 were objected to due to informalities. Claim 7 was amended to address the objections. It is submitted that the objections to claim 7 and its dependent claim 8 have been overcome. Withdrawal of the objections is respectfully requested.

§101 Rejection of the Claims

Claims 1-8, 12-3, 15-16 and 20-27 were rejected under 35 U.S.C. § 101 because the claimed invention is directed to non-statutory subject matter.

Claims 1, 16, and 26 were amended to clarify that the methods of claims 1, 16, and 26 are computer-implemented methods and to recite a processor. It is submitted that the rejections of claims 1, 16, and 26 and their respective dependent claims have been overcome. Withdrawal of rejections is respectfully requested.

Claim 12 recites an apparatus arranged to match a set of input fingerprint blocks, .. comprising a processing unit arranged to perform certain operations. It is submitted that claim 12 and its dependent claims are directed at an apparatus that performs a concrete and tangible result of determining a match between fingerprint blocks. Withdrawal of the rejection is respectfully requested.

Claim 15 is directed to a machine-readable medium that is to be understood as a tangible storage medium. It is submitted that claim 15 is directed at a statutory subject matter. Withdrawal of the rejection is respectfully requested.

§103 Rejection of the Claims

Claims 1-3, 6-8, and 12-27 were rejected under 35 U.S.C. § 103(a) as being unpatentable over Cano et al. (IDS filed 4/13/2006, "Robust Sound Modeling for Song Detection in Broadcast Audio") and further in view of Wang et al. (U.S. 6,990,453).

Cano describes matching a short subsequence with a fingerprint in the database, and then finding a match for a longer sequence. The two sequences that are the subjects of the matching operations are associated with the same position. If a node contains a certain amount of exact matching results, an approximate matching method is applied to detect similarities of longer sequences starting at the position of the exact matches. (Cano, page 5, the right column, under a subheading "Matching Process.") The Office action correctly stated that Cano fails to disclose or suggest a matching method that uses two fingerprint blocks located in the input set at distinct positions.

Claim 1 requires that the second fingerprint block from the input set ("a further fingerprint block") is matched with a corresponding fingerprint block that is stored at a particular location in the database (i.e., the location selected based on the position of the further fingerprint block in the input set). The Office action cites Wang to show this feature.

A method for recognizing an audio sample in Wang locates an audio file that most closely matches the audio sample from a database indexing a large set of original recordings. Each indexed audio file is represented in the database index by a set of landmark time points and associated fingerprints. Landmarks occur at reproducible locations within the file, while fingerprints represent features of the signal at or near the landmark time points. (Wang, Abstract.) The process of constructing a searchable database index is described in Wang with reference to Figure 3, e.g., at 8: 50-56, 9: 62-67, and 14: 46-56.

In order to perform recognition, according to Wang, landmarks and fingerprints are computed for the unknown sample and used to retrieve matching fingerprints from the database. For each file containing matching fingerprints, the landmarks are compared with landmarks of the sample at which the same fingerprints were computed. If a large number of corresponding landmarks are linearly related, i.e., if equivalent fingerprints of the sample and retrieved file have the same time evolution, then the file is identified with the sample. (Wang, Abstract.) Thus, in Wang, fingerprints of an audio sample are matched with fingerprints stored in the database without any regard to their respective locations. The landmarks associated with the fingerprints are only examined after the fingerprints from the sample have been successfully matched with certain fingerprints from the database. A method where an audio sample is recognized by examining respective locations of matching fingerprints is distinct from a method where a pair of fingerprints to be matched is selected based on their locations in the sample and in the database file respectively. The method described in Wang is therefore different from a method where a further fingerprint block from the input set is matched with a corresponding fingerprint block that is stored at a particular location in the database (i.e., the location selected based on the position of the further fingerprint block in the input set), while the position of the further fingerprint block from the input set is selected relative to the position of a first matched fingerprint block.

Thus, the combination of Cano and Wang fail to disclose or suggest the feature of "selecting a further fingerprint block from said set of input fingerprint blocks, the further fingerprint block associated with a second position in the input set of fingerprint blocks relative to the first position associated with said first fingerprint block, the second position being distinct from the first position" and then "locating a corresponding fingerprint block in said database at a position corresponding to the second position in the set of fingerprint blocks" and "determining if the corresponding fingerprint block matches said further fingerprint block," as recited in claim 1.

Therefore, because combining Cano with Wang does not yield the matching method of claim 1, the rejection of claim 1 and its dependent claims should be withdrawn.

Claim 12 recites "a processing unit arranged to select a first fingerprint block of said set of input fingerprint blocks, the first fingerprint block associated with a first position in the input

set of fingerprint blocks; find a first matching fingerprint block in said database that matches the first fingerprint block; select a further fingerprint block from said set of input fingerprint blocks, the further fingerprint block associated with a second position in the input set of fingerprint blocks relative to the first position associated with said first selected fingerprint block, the second position being distinct from the first position; locate a corresponding fingerprint block in said database at a position corresponding to the second position in the set of fingerprint blocks.” Thus, claim 12 and its dependent claims are patentable and should be allowed at least for the reasons articulated with respect to claim 1.

Claim 15 recites “a processing unit arranged to select a first fingerprint block of said set of input fingerprint blocks, the first fingerprint block associated with a first position in the input set of fingerprint blocks; find a first matching fingerprint block in said database that matches the first fingerprint block; select a further fingerprint block from said set of input fingerprint blocks, the further fingerprint block associated with a second position in the input set of fingerprint blocks relative to the first position associated with said first selected fingerprint block, the second position being distinct from the first position; locate a corresponding fingerprint block in said database at a position corresponding to the second position in the set of fingerprint blocks.” Thus, claim 15 is patentable and should be allowed at least for the reasons articulated with respect to claim 1.

Claim 16 recites “instruction data to cause a machine to select a first fingerprint block of said set of input fingerprint blocks, the first fingerprint block associated with a first position in the input set of fingerprint blocks; find a first matching fingerprint block in said database that matches the first fingerprint block; select a further fingerprint block from said set of input fingerprint blocks, the further fingerprint block associated with a second position in the input set of fingerprint blocks relative to the first position associated with said first selected fingerprint block, the second position being distinct from the first position; locate a corresponding fingerprint block in said database at a position corresponding to the second position in the set of fingerprint blocks; and determine if the corresponding fingerprint block matches said further fingerprint block.” Thus, claim 16 and its dependent claims are patentable and should be allowed at least for the reasons articulated with respect to claim 1.

Claim 26 recites “receiving a plurality of input fingerprint blocks, the plurality of fingerprint blocks to represent an input information segment; selecting a first fingerprint block from the plurality of input fingerprint blocks, the first fingerprint block associated with a first position in the plurality of input fingerprint blocks; determining a matching fingerprint block in the reference database based on a positive match between the first fingerprint block and the matching fingerprint block; determining a second position in the plurality of input fingerprint blocks, the second position based on a predetermined relationship between two fingerprint blocks from the plurality of input fingerprint blocks, the second position being distinct from the first position; determining a further fingerprint block at a second position in the plurality of input fingerprint blocks, the second position being distinct from the first position; in the reference database, determining a corresponding fingerprint block based on its position in the reference database corresponding to the second position; comparing the further fingerprint block and the corresponding fingerprint block to determine a match.” Thus, claim 26 is patentable and should be allowed at least for the reasons articulated with respect to claim 1.

Claims 4 and 5 were rejected under 35 U.S.C. § 103(a) as being unpatentable over Cano et al. (IDS filed 4/13/2006, “Robust Sound Modeling for Song Detection in Broadcast Audio,” and further in view of Wang et al. (U.S. 6,990,453) and in view of Burges et al. (7,082,394).

Burges is related to noise-robust feature extraction. (Burges, Title.) Burges, whether considered separately or in combination with Cano and Wang, fails to disclose or suggest the elements of claim 1 that are present in claims 4 and 5 by virtue of their being dependent on claim 1. Thus, claims 4 and 5 are patentable in view of Cano, Wang, and Burges.

CONCLUSION

Applicant respectfully submits that the claims are in condition for allowance, and notification to that effect is earnestly requested. The Examiner is invited to telephone Applicant's representative at (408) 278-4052 to facilitate prosecution of this application.

If necessary, please charge any additional fees or credit overpayment to Deposit Account No. 19-0743.

Respectfully submitted,

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CERTIFICATE UNDER 37 CFR 1.8: The undersigned hereby certifies that this correspondence is being filed using the USPTO's electronic filing system EFS-Web, and is addressed to: Mail Stop Amendment, Commissioner for Patents, P.O. Box 1450, Alexandria, VA 22313-1450 on October 29, 2008.

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